LAKE ROLAND DAM, GATEHOUSE HAER No. MD-81-A
Spanning the outlet of Lake Roland adjacent to Woodbridge Road,
0.48 mile north of the northern Baltimore City boundary
Towson Vicinity
Baltimore County
Maryland

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING REGORD
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HISTORIC AMERICAN ENGINEERING RECORD

LAKE ROLAND DAM, GATEHOUSE HAER No. MD-81-A

Location: Southeast side of Lake Roland dam, adjacent to Woodbridge Road, located 0.48 mile just north of the northern Baltimore City boundary, Towson Vicinity, Baltimore County, Maryland

UTM: 18.0358420.4359820
Quad: Cockeysville, Maryland

Date of Construction: 1861. Abandoned 1915.

Architect: James Slade
Engineer: Charles P. Manning
Builder: J.B. and T.F. Connolly

Present Owner: Baltimore City
Department of Recreation and Parks
2600 Madison Avenue
Baltimore, MD 21217

Present Use: Vacant

Significance: The Lake Roland Water Supply Project was the first attempt by the City of Baltimore to establish a city-wide water supply system. The gatehouse is one of the surviving elements of the system which provided a supply of water to the city from 1861 to 1915. The Lake Roland Water Supply Project is significant as one of the first municipal waterworks in the State of Maryland and as one of the first sites in the United States used for testing hypochlorite water treatment processes.

Project Information: This documentation was undertaken in August, 1991 in accordance with a scope of work by MAAR Associates, Inc. of Newark, Delaware, for Allied Contractors, Inc. of Baltimore, Maryland as a mitigation measure prior to the initiation of the Lake Roland Dam and Gatehouse Renovation Project, Baltimore.

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The Lake Roland Water Supply System was built in response to Baltimore's need for increased water supply during the city's population expansion of the 1850s. It was the first municipal water supply system to be built in the City of Baltimore, as well as one of the first municipal waterworks constructed in the State of Maryland. The system was operational by 1862, but within two years, it was recognized as insufficient to fulfill the city's needs. Siltation and the inflow of waste led to pollution of the water, causing city-wide outbreaks of typhoid fever in the 1860s.

A new and larger dam was constructed at Lock Raven in 1914, and use of the Lake Roland Water Supply System was discontinued on November 19, 1915. The Lake Roland system was briefly brought back into use on December 2 as the result of a leak in the new system, but ceased to function after that date. Further information regarding the Lake Roland Water Supply System complex can be found in HAER documentation entitled HAER No. MD-81.

One of the components of the water supply system was the gatehouse, which controlled the seven gates built into the dam. Engineer Charles P. Manning described this flow control system in 1862:

> The gate chambers consist of two distinct apartments, the floors of which are at the respective heights of 201 and 210 feet above tide - or respectively 24 and 15 feet below the crest of the dam, and the usual surface of the lake. The lower chamber is provided with gates which regulate the discharge of water through the waste flume, and by means of which the lake can be drained to the bottom. The higher chamber is provided with gates by which the flow of water into the conduit is regulated; and another gate for occasional use, when a connection between the waste and conduit chambers may be needed. The gate chambers are enclosed by a substantial stone house, upon the floor of which are placed screw stands of the several gates. All the masonry of the dam was carefully laid in full beds of fresh hydraulic cement mortar, and where necessary, thoroughly grouted with the same material (McGrain 1979:255).

The one-story, one bay, Greek Revival gatehouse with pedimented front gable was built on the southeast side of the dam by the firm of J. B. and T. F. Connolly of common bond brick faced with finely cut limestone from their Texas, Maryland quarries. The firm maintained an office located on East Madison Street in Baltimore. The corners of the regularly coursed, squared ashlar structure are highlighted with projecting quoins and the door and window openings surrounded by projecting limestone blocks. Large, projecting, rectangular name and date stones set into the wall above the recessed five-panel double entry door read: "Lake Roland" "1861." The building contains two three-foot wide, rectangular windows on each side and one three-foot wide, rectangular window in the rear gable end; all five windows are spanned and sealed by wooden doors. The

gatehouse sits on a full story, limestone block foundation which houses the seven gates which controlled the outflow of water from Lake Roland. All exterior architectural details, including the full entablature and wide trim in the gable ends, and the ogee-molded water course, are of Texas, Maryland limestone.

The gatehouse interior contains a one-room plan with an open, king-post roof framing system and modern paint and plaster covering the original plaster on the walls. Decorative detailing is limited to the limestone portal which surrounds the double entry doors. The seven iron screw stands which open and close the sluice gates are set into the limestone floor and are surrounded on three sides by iron grating. Three stone plaques are set into the gable end wall. The first, a narrow rectangular plaque centered above the window reads: "Baltimore Aqueduct." The other two plaques, which are placed on either side of the window, list the names of members of the Board of Water Commissioners at the commencement (1858) and completion (1861) of the Lake Roland construction project. Original hardware, including door and window hinges and latches, a door handle and the iron grates surrounding the screw stands, remain intact but in poor condition.

An iron railing which divides the southwest section of the structure from the principal interior space runs between the front and rear gable ends on the west side of the door. The area between the railing and the west wall is spanned by a wooden platform which extends from the rear end wall to what remains of the cement chlorine mixer installed in the plant in 1911. The installation of the mixer, and of the belts and engine required for its operation, represents the only addition or change to the gatehouse during its fifty years of operation. Although the engine and belts have been removed from the structure, one of the countershafts remains on the east side wall.

Construction of the gatehouse was completed in October of 1861. The firm of A. & W. Denmead and Sons, who operated the Monumental Iron Works located at Monument Street and Guilford Avenue in Baltimore, "executed the iron work, and fitted up the gates of the several gate chambers, and cast the curved and branch pipes of the pipeline" (McGrain 1979:256).

While the construction of the Lake Roland system does not represent a milestone in terms of technological innovation or municipal provision of a public water supply, it is significant as one of the first sites in the United States at which the large-scale purification of water with liquid chlorine was tested. During the nineteenth century, concern about the purity of city water led to the use and development first of filters, which removed particles and sediment, and then of chlorine (Draffin 1939:72-74).

In 1911, a chlorinating system consisting of a mixing machine, which utilized countershafts to connect belts to an engine, was installed in the Lake Roland gatehouse. Known thereafter as a hypochlorite plant, the Lake Roland waterworks was one of two sites (the Western New York Water Company's Niagra Falls plant was the other) used for large-scale testing of the application of liquid chlorine to a public water supply system. Experiments conducted at the plant documented the merit of utilizing liquid chlorine and led to its widespread use in public water supply systems in the United States both before and after filtration (Draffin 1939:74-75).

Bibliography

Draffin, Jasper Owen, M.S.
1939 The Story of Man's Quest for Water. The Garrard Press, Champaign, Illinois.

McGrain, John W.
1979 Historical Aspects of Lake Roland. Maryland Historical Magazine, September 1979. Vol. 74, No. 3, pp. 253-273.